IWRM2018-7
8th International Water Resources Management Conference of ICWRS


# Stability and Tilting of Regional Water Cycle over Tarim Basin

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The Tarim Basin is located upwind of the Gobi Desert where individual deserts have expanded significantly during the last 50 years. In recent history, stable runoff in the Tarim Basin has been observed despite the Lop Nur dry up and dramatic water consumption shift from east to west. This regional water cycle stability is conceptually explained based on the relationship between precipitation and evapotranspiration. The water consumption imbalance is caused by human activities near the river sources, which tilts the humidity profile over the basin. As a result, more water vapor spills from the western part of the basin and causes precipitation to increase in adjacent areas. At the same time, the Westerlies carry the low humidity air mass out of the eastern part of the basin to make the downwind Gobi Desert and surrounding areas drier. Therefore, the observed wetting on the west and drying on the east of northwest China are coupled.